

# Neuromorphic Compute Chips

ANMD-MRS7-069 · Advanced Semiconductor Applications

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

## WHY THIS REPORT

Neuromorphic compute chips rethink computing on the brain's terms — the spiking, in-memory and event-driven architectures that promise orders-of-magnitude better energy efficiency for sensing and inference at the edge. This decision-grade study sizes the global market three ways — value, unit volume and TOPS/Watt efficiency — across architecture, application and end user, across seven regions and four scenarios to 2032, with outlooks to 2050.

## SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability is this report's backbone, not an afterthought. Neuromorphic's core contribution is energy-per-inference reduction for edge and always-on workloads, potentially displacing far less efficient conventional inference and lowering the energy footprint of pervasive AI.

Mapped Sustainable Development Goals:

<p><b>SDG 7</b> Affordable Clean Energy</p>	<p><b>SDG 9</b> Industry &amp; Innovation</p>	<p><b>SDG 13</b> Climate Action</p>
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Measurable sustainability outcomes assessed:

- Energy-per-inference reduction for edge and always-on AI
- Ultra-low-power sensing and inference
- Displacement of less-efficient conventional accelerators
- Fab energy intensity, early-stage TRL uncertainty and electronics end-of-life as material risks

**Framework alignment:** Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

## WHAT'S INSIDE AT A GLANCE

<p><b>53</b> Chapters</p>	<p><b>9</b> Report Parts</p>	<p><b>7</b> Regions Covered</p>	<p><b>40+</b> Country Markets</p>
<p><b>2025–32</b> Forecast Horizon</p>	<p><b>4</b> Forward Scenarios</p>	<p><b>25+</b> Companies Profiled</p>	<p><b>3</b> SDGs Mapped</p>

## REPORT COVERAGE

**Geographic scope:** North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. North America is the research leader (United States) on platform programmes and edge-AI silicon; Europe is the innovation hub (Germany, Netherlands, United Kingdom) on R&D and startups; Asia Pacific is the scale engine; other regions assessed on their own merits.

## MARKET OVERVIEW

### From research to early commercial — where compute goes spiking, in-memory and event-driven.

Neuromorphic compute is an emerging, research-to-early-commercial field. Demand is driven by ultra-low-power edge AI, always-on sensing, and the search for alternatives to von-Neumann inference — with digital, analog and in-memory approaches competing. The market is read three ways — value, unit volume and TOPS/Watt efficiency — and forecast under four scenarios, each region reported separately.

- **North America is the research leader** — United States, on platform programmes and edge-AI silicon
- **Europe is the innovation hub** — Germany, Netherlands and United Kingdom, on neuromorphic R&D and startups
- **Asia Pacific is the scale engine** — China, South Korea and Japan, on foundry and device integration
- **Efficiency is the differentiator** — spiking and in-memory architectures plus TOPS/Watt advantage

## REGIONAL OUTLOOK

Across seven reporting regions, the report separates early commercialisation leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Markets & Drivers
North America	Research leader	United States — platform programmes, edge-AI silicon
Europe	Innovation hub	Germany, Netherlands, United Kingdom — R&D, startups
Asia Pacific	Scale engine	China, South Korea, Japan — foundry, device integration
Middle East	High-growth	Israel, UAE — chip design, deep-tech investment
Latin America	Emerging	Brazil, Mexico — electronics assembly, adoption
Africa	Emerging	South Africa, Egypt — electronics, industrial adoption

## KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> <li>• Edge-AI + always-on-sensing power convergence</li> <li>• Energy-per-inference &amp; battery-life value</li> <li>• Policy &amp; funding support (chips acts, AI research)</li> <li>• Software-and-platform maturity momentum</li> <li>• Spiking, analog &amp; in-memory architecture gains</li> </ul>	<ul style="list-style-type: none"> <li>• Early-stage TRL &amp; commercialisation uncertainty</li> <li>• Software, toolchain &amp; ecosystem immaturity</li> <li>• Fab access, cost &amp; integration complexity</li> <li>• Benchmarking &amp; comparability challenges</li> <li>• Talent, standards &amp; design-flow gaps</li> </ul>

## SEGMENTATION SNAPSHOT

By Architecture	Digital spiking · analog · in-memory compute
By Application	Edge AI · always-on sensing · wearables · robotics · IoT
By Compute Model	Spiking neural networks · event-driven · in-memory matrix
By End User	Device OEMs · research labs · defence · industrial
By Maturity	Research · prototype · early commercial
By Business Model	Chip sale · IP licensing · foundry · co-design

## TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

### Part I — Report Foundation, Discovery and Strategic Intelligence

- › Chapter 1. Scope, Methodology and Report Architecture
- › Chapter 2. Industry Discovery Summary — Neuromorphic Compute Chips
- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

### Part II — Market Intelligence, Sizing, Forecasting and Segmentation

- › Chapter 5. Industry Overview and Market Evolution
- › Chapter 6. Market Dynamics
- › Chapter 7. Global Market Size and Forecast, 2020–2032
- › Chapter 8. Market Segmentation Analysis
- › Chapter 9. End-User and Demand-Side Intelligence
- › Chapter 10. Pricing, Cost and Commercial Model Intelligence

### Part III — Regional and Country Intelligence

- › Chapter 11. Global Regional Intelligence Framework
- › Chapter 12. North America Market Intelligence
- › Chapter 13. Europe Market Intelligence
- › Chapter 14. Asia Pacific Market Intelligence
- › Chapter 15. Latin America Market Intelligence
- › Chapter 16. Africa Market Intelligence
- › Chapter 17. Middle East Market Intelligence
- › Chapter 18. Rest of World Market Intelligence

### Part IV — Technology, Innovation and Category-Specific Intelligence

- › Chapter 19. Technology Landscape and Architecture
- › Chapter 20. Emerging and Next-Generation Technology Intelligence
- › Chapter 21. Category-Specific Intelligence Module
- › Chapter 22. Research, Innovation and Funding Landscape

## Part V — Company, Competition, Patent and Project Intelligence

- › Chapter 23. Competitive Landscape
- › Chapter 24. Company Profiles
- › Chapter 25. Mergers, Acquisitions, Partnerships and Ecosystem Intelligence
- › Chapter 26. Patent Landscape and Intellectual Property Intelligence
- › Chapter 27. Project, Deployment and Case-Study Intelligence

## Part VI — Sustainability, ESG, SDG, Climate and Natural-Capital Intelligence

- › Chapter 28. Sustainability Intelligence Suite
- › Chapter 29. ESG Intelligence and Double Materiality
- › Chapter 30. ESG and Sustainability Framework Alignment
- › Chapter 31. SDG Intelligence
- › Chapter 32. Carbon, Net-Zero and Climate-Mitigation Intelligence
- › Chapter 33. Water, Biodiversity and Natural-Capital Intelligence
- › Chapter 34. Circular Economy and Resource-Security Intelligence
- › Chapter 35. Social Impact, Human Capital and Community Intelligence
- › Chapter 36. Climate Risk, Adaptation and Resilience Intelligence

## Part VII — Supply Chain, Policy, Legal, Economics and Finance

- › Chapter 37. Value Chain, Supply Chain and Geopolitical Intelligence
- › Chapter 38. Policy, Regulation and Incentive Intelligence
- › Chapter 39. Legal, Contracting and Risk-Allocation Intelligence
- › Chapter 40. Unit Economics, CAPEX, OPEX and Return Analysis
- › Chapter 41. Investment, Sustainable Finance and Bankability Intelligence

## Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

- › Chapter 42. Scenario Analysis and Future Intelligence
- › Chapter 43. Sustainability Due Diligence Framework and Data-Room Index
- › Chapter 44. Risk Register, RAG Rating and Anti-Greenwashing Screen
- › Chapter 45. Bottom-Line Verdict and Strategic Recommendations
- › Chapter 46. Implementation Roadmap and Stakeholder Playbooks

## Part IX — Annexes, Directories and Reference Material

- › Chapter 47. Methodology Annex
- › Chapter 48. Corporate Directory and Company Intelligence Annex
- › Chapter 49. Patent Directory and Patent Intelligence Annex
- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

## COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans global semiconductor majors, specialist neuromorphic compute chips makers, and emerging innovators. Deal activity — M&A, technology acquisition and platform expansion — signals a market consolidating around scalable, platform and software maturity.

### Representative players profiled in the full report:

Intel Corporation (Loihi) · International Business Machines Corporation (TrueNorth / NorthPole) · Qualcomm Incorporated · Innatera Nanosystems B.V. · Samsung Electronics Co., Ltd. · Mythic, Inc. · Rain AI · and 20+ further profiled players across platform leaders, in-memory startups and emerging innovators.

**Investment intelligence:** venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a Go / No-Go / Conditional-Go investment verdict.

## KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global neuromorphic compute chips market, and how fast will it grow to 2032?
- ? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- ? How does energy-per-inference (or sensing efficiency) change value versus conventional silicon?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the category align with the SDGs, digital-equity and energy-efficiency and disclosure regulation?

## WHY ANMD — THE DIFFERENCE

*Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, water and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.*

- **Triangulated sizing** — every market read three ways so value, volume and efficiency views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear Go / No-Go / Conditional-Go investment verdict.

## WHO SHOULD BUY THIS REPORT

Investors and deep-tech / PE funds, semiconductor and device OEMs, foundries and IP licensors, system integrators and industrial users, research labs and defence buyers, regulators and lenders, and corporate strategy and ESG teams.

### Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at [www.anewmarketdynamics.com](http://www.anewmarketdynamics.com) · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

### Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at [www.anewmarketdynamics.com](http://www.anewmarketdynamics.com). The full detailed table of contents will be sent directly to your registered company email address.